DOCUMENT RESUME

ED 427 488 EC 307 059

AUTHOR Douglas, Letitia
TITLE An Evaluation of the Effectiveness of Early Intervention on Autistic Children.
PUB DATE 1999-01-14
NOTE 32p.; Master's Research Paper, Chicago State University.
PUB TYPE Dissertations/Theses (040) -- Information Analyses (070)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Autism; Behavior Change; *Behavior Modification; Child Development; Children; Early Childhood Education; *Early Intervention; *Outcomes of Treatment; Peer Relationship; *Play Therapy; Social Development; *Social Integration; Socialization

ABSTRACT

This paper focuses on several prescribed interventions used to elicit and meet the needs of children with autism. Three intervention strategies that affect behavior modification of children with autism are discussed: (1) early intensive behavioral treatment; (2) social interaction between children with a disability and their typical peers; and (3) symbolic play therapy. A literature review concludes that early intensive behavioral intervention has brought about a substantial amount of progress for over half the children involved and that these behavioral interventions are effective in the long run. The need for early intensive behavioral treatment to be restructured to accommodate the classroom and home environment is urged. Integrated social environments with children with and without disabilities were also found to have positive results. Decreased levels of autistic behaviors corresponded with the availability to typical peers in the same setting of children with autism. Finally, the literature review found that children with autism were able to generate some pretend play with cues and prompts or toys with many manipulative features, which helps children with autism correlate to the external world. (Contains 35 references.) (CR)

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An Evaluation of the Effectiveness of Early Intervention on Autistic Children

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Letitia Douglas

A research paper submitted to the faculty of the
Department of Special Education at Chicago State University
in partial fulfillment for the degree of Master of Science in Education

January 1999

EC 307059

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Approval Page

Approved by: _____

Date: 1/14/97

Abstract

This paper focuses on several prescribed interventions used to elicit and meet the needs for developmentally disabled autistic children. According to Gillingham (1997), Bristol et al. (1996), and the National Information Center for Children and Youth with Disabilities (NICHCY) (1998), autism is described as a severe social, communication, and behavioral disorder marked by daydreaming and fantasy with a loss of interest in external reality. This disability impedes the growth of relationships and activities that a child needs to function in a normal world. Rogers (1996) suggested that early intervention appeared to lessen the debilitating effects of autism.

The author discusses 3 intervention strategies that effect behavior modification of autistic children: (a) early intensive behavioral treatment, (b) social interaction between the disabled child and their nondisabled peers, and (c) symbolic play therapy. All of these elements play a significant role in early intervention. According to the literature reviewed, these intervention strategies have had a positive impact on improving the lives of autistic children. While the degree to which these strategies impact individual children may vary in long-term outcomes, steps toward an improved quality of life on a daily basis are significantly made.

Introduction

In past years, experts have agreed that children and youth with autism are characterized as having difficulty in developing and maintaining interpersonal relationships (Gillingham, 1997). These children are believed to be imprisoned in their own world with little or no response shown toward others. Parents and teachers are often frustrated as to how to communicate with the autistic child. In many instances, the autistic behavior combinations and patterns are so complex and interwoven that multiple therapeutic approaches are essential. Experts concurred that individuals with autism respond well to highly structured behavior modification therapies and would benefit most when intervention occurs at an early age (Rogers, 1996). The Education for all Handicapped Children Act of 1975 (P. L. 94-142) and the Education for all Handicapped Children Amendments of 1986 (P. L. 99-457) have prompted commitments from the U. S. Department of Education to develop a variety of early invention programs and to evaluate their effectiveness (Guralnick, 1997). These amendments led to important changes in education for autistic children--changes that may have been denied without this legislation.

The lack of a universal definition of autism is very frustrating. As more people study this issue, this dilemma broadens. Caught within the confusion of this dilemma is an obscure group of people who little is known about. Knowledge of the syndrome known as autism has been a controversial issue ever since it was first reported by child psychiatrist Leo Kanner in 1843. Kanner's (cited in Gillingham, 1997) definition of

autism stated that,

> Similarities among many of these children display certain problem areas: relating with people and objects, communicating, eating, a need for sameness, a tendency to be anxious around other people, repetitive behaviors, horror reactions to sensory over stimulation such as, loud noises and the lack of the ability to reach and be picked up. (p. 41)

Since 1843, Kanner's definition had been widely accepted by scientists as the basic understanding of autism. Recently, studies have produced new evidence that resulted in the change of various features of Kanner's original definition. Fact Sheets on Autism (U. S. Department of Health and Human Services, 1998) has established levels of mental retardation in terms of IQ scores for autistic people that determines the severity of the disability. The Autism Society of America (ASA) has changed its definition twice in the last 6 years (Gillingham, 1997). The first definition focused exclusively on autism; however, the second definition focused on autism and Pervasive Developmental Delay (PDD). The ASA's 1993 definition stated the following:

> Autism is a severely incapacitating lifelong developmental disability that typically appears during the first 3 years of life. It occurs in approximately 15 out of every 10,000 births and is four times more common in boys than girls. It has been found throughout the world in families of all racial, ethnic, and social backgrounds. No known factors in the psychological environment of a child have been shown to cause autism. (p. 9)

In contrast, the 1996 definition by the ASA reflected the following changes:

> Autism is a developmental disability that typically appears during the first three years of life. The results of a neurological disorder that affects functioning of the brain, autism and its associated behaviors occur in approximately 15 out of every 10,000 individuals. Autism is four times more prevalent in boys than girls and knows no racial, ethnic, or social boundaries. Family income, lifestyle, or educational levels do not affect the chance of occurrence. The more severe forms of autism are referred to as Pervasive Developmental Delay (PDD). Autism, however serves as a useful model for all PDD, and it's reasonable to assume that most of the conceptual framework and scientific knowledge developed about autism will also apply to PDD. (Gillingham, 1997, p. 10)

Sullivan (1988) stated that "two features of autism are extreme aloneness and unresponsiveness to other people, probably based on the profound and pervasive inability to understand and use language in a normal way and preservation of sameness" (p. 1). The National Information Center for Children and Youth with Disabilities (NICHCY) stated that "autism is a developmental disorder, which usually becomes evident before the age of three years. It is a neurological or brain disorder in which behavior, communication, and social interactions are the primary disabilities" (NICHCY, 1998, p. 1).

In the twentieth century, the definitions for autism correlate more closely with each other in text. They also continue to include characteristics of the first definitions; however, the symptoms for autism have broadened in scope. One definition reflects

behavioral issues as a primary concern. Bristol et al. (1996) suggested in a report to the National Institute of Health (NIH), on the state of science in autism, that every intervention may be particularly effective in managing behavior.

Early Intensive Behavioral Treatment

Professionals have attempted a wide variety of interventions in an effort to assist children with autism. For many years, no scientific evidence illustrated that any of these interventions brightened the children's long-term prognosis; however, since the 1960s, one of these interventions, behavioral treatment, has shown promise. Behavioral treatment has revealed an increase in adaptive behavior such as language and social skills, while decreasing disruptive behaviors such as aggression (McEachin, Smith, & Lovaas, 1993). Moreover, behavioral treatment is being continuously refined and improved as a result of ongoing research efforts at various locations.

McEachin et al. (1993) endeavored to maximize behavioral treatment for autistic children by increasing the time spent in treatment during the course of the day. They began the early intervention project (EIP) in 1970. The EIP is a discrete trial treatment program for young high-functioning children with autism (Gresham & MacMillan, 1997). The treatment program focused on autistic children less than 4-years old and was said to include all significant persons in all significant environments. The concept of EIP is based partially on principles of operant conditioning and behavior modification, but it appears to focus primarily on discrete trial discrimination, learning, and compliance with simple commands (e.g., sit down, stand up, look at me, etc.). The EIP was designed to take place over a 3- year period, 365 days per year, and 40 hours or more per week.

The first year of the EIP design focused on (a) reducing self-stimulatory and aggressive behaviors, (b) teaching imitation responses, (c) promoting appropriate toy play, and (d) extending treatment to the family. The second year of the program centered the attention toward teaching expressive and abstract language and teaching appropriate social interaction with peers. The final year stressed instruction on (a) appropriate emotional expression, (b) preacademic tasks, and (c) observational learning of peers involved in academic tasks (Lovaas, 1987). The participants in this project were not randomly sampled from a population of children with autism and were not randomly assigned to groups; they were specially selected. There were three groups: the experimental group, control group 1, and control group 2. At intake, the children in the experimental group and the first control group were compared on variables such as diagnosis, chronological age, treatment received at chronological age, prorated mental age, recognizable words, toy play, self stimulation, sum pathology, and abnormal speech.

The children in control group 2 were not correlated with the other two groups on the eight variables measured at intake. It is unclear why this group was included in the design. The experimental group included 19 children who received more than 40 hours per week of discrete trial one-to-one treatment. As mentioned earlier, the treatment program was based on certain principles of behavior modification that emphasized reduction of inadequate behaviors (e.g., self-stimulation and aggression) and more compliance with instructions. Control group 1 was comprised of 19 children who received 10 hours or less per week of the one-to-one discrete trial treatment. This group began treatment at a slightly different age due to staff shortages.

Only two outcome measures were used to indicate the efficiency of the EIP: IQ and Educational Placement (EDP) (Gresham & MacMillan, 1997). The IQs were assessed with at least seven different measures of intellectual functioning--primarily the Wechsler Intelligence Scale for Children-Revised (WISC-R), Stanford Binet Intelligence Scale, the Catell Infant Intelligence Scale, and The Peabody Picture Vocabulary Test (PPVT). EDP was interpreted by a rating system comprised of three factors: IQ score, class placement, and promotion-retention. A child received a score of 3 if the IQ score obtained was within the *normal range*, completed first grade in a regular school for nondisabled children, and was advanced to the second grade. A child received a score of 2 if placed in a smaller setting (e.g., a resource room). A score of 1 was received if the child was placed in a special education (e.g., self-contained) classroom and had an IQ score in the area of *severe mental retardation*. According to data, 47% of the experimental group received IQ scores *within the normal range* and were promoted through first grade in a regular classroom. Control group 1 children had no success. Miraculously, control group 2, which appeared to be almost nonexistent in the project with no reported treatment, had one child reach *normal* range. Two of the groups had follow-up and long-term outcomes. The children maintained IQ gains at age 13 in the experimental group, whereas control group 1 children who experienced less treatment did not. The long-term outcome gives more extensive details of the best outcome group extracted from the experimental group. *Normal* range was achieved on adaptive behavioral skills, personality functioning, and intellectual screening.

Unfortunately, the EIP project limited its findings to the higher functioning

autistic children with an IQ of 35 or higher. Therefore, virtually no information existed about the outcome achieved with behavioral treatment for preschoolers who have both severe mental retardation and autistic features. In order to gain data from this population, the model developed by Lovaas (1987) and his associates was administered, evaluated, and partially replicated. The criteria followed in this study were slightly different. The standards were (a) chronological age (CA) of 46 months or less at time of referral (b) a ratio or less than 35 as measured by the Mental Development Index of the Bayley Scales of Infant, (c) diagnosis by a licensed psychologist or psychiatrist who was not introduced in this resource and who had expertise in assessing young children with developmental disabilities based on the Diagnosis and Statistical Manual (DSM-III) criteria (American Psychiatric Association, 1994) of both mental retardation and pervasive developmental disorder; (d) residence within a 1 hour drive of the treatment site in order to provide for services in the children's homes and communities; and (e) absence of any major medical limitations (Smith, Eikeseth, Klevstrand, & Lovaas, 1997). All clients who met the selection criteria for participants were assigned to one of two groups: (a) an experimental group of 11 boys who received intensive treatment, which consisted of 30 hours or more of one-to-one treatment each week for 2 or more years and (b) a comparison group of 8 boys and 2 girls who received minimal treatment, which consisted of 10 hours or less each week of one-to-one treatment for up to 2 years.

Assignment to groups was based on therapist availability. If sufficient therapists were available, participants entered the experimental group and received intensive treatment; otherwise, they entered the comparison group and received minimal treatment.

In short, the treatment was designed to progress gradually and systematically from simple tasks, such as responding to basic requests made by an adult, to more complex skills, such as conversing and making friends with peers. In the beginning stages of treatment, instruction took place in a one-to-one discrete trial format that enabled therapists to give highly undivided attention to each child. Later, the program focused on helping the participants to adjust to group settings (i.e., classrooms) (Smith et al., 1997).

Assessment was done by comparing pre- and posttreatment functioning. Additional results were affected by the presence or absence of the following six problems: (a) apparent sensory deficits (e.g., not responding to spoken language despite normal hearing; (b) adult rejection (c) appropriate toy play (e.g., stacking instead of lining blocks); (d) stereotypical behaviors (e.g., flicking the fingers in front of the eyes, spinning objects); (e) tantrums; and (f) no toilet training or with toilet training defined as being out of diapers and having no more than two accidents per week on average. The average IQ of the experimental group increased from 28 at intake to 36 at follow-up. The comparison group's average IQ decreased from 27 to 24. None of the children knew spoken words at intake; however, 10 of the 11 experimental group's participants did so at the follow-up compared to 2 of the 10 in the comparison group. Furthermore, the 10 children who spoke also labeled objects and expressed their needs rather than echoing what others said. Additionally, 2 of the experimental participants began to speak in full sentences. Oddly, the groups failed to differ from each other on any behavior problems (Smith et al., 1997).

Internal Validity Issues

Understandably, there are many critical questions and issues that have been raised by professionals, scientists, administrators, school district personnel, and others. Some internal validity threats were described as,

1. The pretest and the posttest administered to the participants used different measures, which would cause results to be difficult to interpret (Gresham & MacMillan, 1997). Interpreting from two different tests gives invalid results.

2. Lovaas (1987) reported that the experimental group's and the control group 1's IQ scores at the pretest were optimized by reinforcing compliant behavior during testing. This is in complete violation of standardized test administration procedures (Gresham & MacMillan, 1997).

3. Participants were not randomly selected. Children were selected from a specific population.

4. Selection had potential bias in terms of parental motivation and staff availability. Children of popular parents were chosen for experiment. Staff availability in experimental and control groupings was not equal.

External Validity Issues

The following were some external validity issues:

1. Can the program provide the same effect when applied to children in other school districts with different therapists and families? The program parameters make it difficult to replicate the study. Conversely, Smith et al. (1997) implemented another intensive program and received positive cognitive results; however, according to interviews with the parents, behavior was not improved.

2. Can proper training be provided for other therapists that do not live near the site? Some training was provided for students at the University of California at Los Angeles and the University of Kansas but not enough to include large group samples. (Smith et al., 1997). They needed a larger sample to allow for a more credible evaluation of persons in the program who varied in their responsiveness to treatment (Kazdin, 1993).

Other Issues

Along with the internal and external issues were other questions:

1. How can this program be provided in an economical way so that a larger number of children can benefit from it? Rogers (1996) and Guralnick (1997) posited that funding be filtered into these programs to service more young children with autism. They also believed that more funding is currently available for early intervention for children at risk and with disabilities because of the new laws.

2. Rogers (1996) questioned how could the treatment become more effective and rapid? Is it appropriate to expend such a large amount of time (Smith et al., 1997) in order to achieve the gains typically made by intensively treated children? Undoubtedly, an earlier start in treatment can produce a more effective result in some autistic children (McEachin et al., 1993). Revisions of the manual for intensive behavioral treatment for autistic children, now outdated, that reflects current research can only lead to better outcomes (Smith et al., 1997).

3. Is there valid (Rogers, 1996) scientific evidence to support this program? In clinical science, a papers true worth is judged after its results are replicated by

independent researchers (Foxx, 1993).

All of these questions are vital and deserve full attention by researchers.

Social Interactions

Social interaction between autistic children and their peers is a major goal toward their development. Children with autism rarely initiate social interactions with their peers. The severely autistic child seems to be in a world of his own unaware of others around him. This low frequency and quality of initiations is one of the most disabling aspects of autism. In the past 20 years, a number of philosophical and theoretical changes have occurred in the field of social interaction for children with autism. With these changes, strategies, expectations, and goals that facilitate appropriate responses from students with autism have undergone significant modification.

According to the 1997 Individuals with Disabilities Education Act (IDEA), special education students have a long-term outcome of regular education. Therefore, they are conducting research on inclusion models from preschool to high school. Teachers working in early childhood special education are seeing more children with autism and PDD in their classrooms as a direct result of IDEA. Regular early childhood educators are also experiencing more autistic children in their programs as a result of the inclusion movement in education (Ford, Riggs, LaRaia, & Nissenbaum, 1994).

Researchers debate whether adult-mediated or peer-mediated interventions more effectively improve the social behaviors of autistic children. Adult-mediated programs are those that rely on an adult prompt to correct social behavior. This type of program was utilized in earlier social interaction programs as well as those in place today.

A number of researchers (Schleien, Mustonen, & Rynders, 1995) believe that peer-mediated social interaction programs have a number of advantages. This program involves teaching autistic children to initiate and prompt social behaviors, including sharing, playing, assisting and conversing. In order to initiate this behavior, they created social inclusion or students with severe disabilities in same setting with nondisabled peers. One source that was utilized to accomplish this was the Special Friends program. The Special Friends program encourages participation of students with and without disabilities in everyday leisure activities that stress socialization. Participation by children in inclusive education is becoming more frequent. Students with autism are being integrated into assemblies, physical education classes, lunch periods, and field trips among other leisure activities. This current study was conducted to evaluate the effects of inclusive art activities that were designed to promote cooperation, positive interactions, and frequent social interactions between participants with and without autism.

Fifteen students with autism and 53 nondisabled students, all attending the same elementary school, participated in the study, which took place at the children's art gallery in St. Paul, Minnesota. Children with autism ranged from 4- to 11-years of age. These children had no previous interactions with nondisabled peers--not even when they were in the same environment. The students were divided into groups. Group 1 consisted of a combined classroom of fourth and fifth graders and the older children with autism. Group 2 was comprised of first graders and the younger children with autism. Participants traveled together by bus to the art museum. Integrated art activities were conducted in Gallery 540, which was designed especially for children ages 5 to 12. The

first 10 to 15 minutes were spent around an art exhibit that was constructed to be manipulated by children.

This gallery contained velcro wall fixtures, floor puzzles, and other interesting attractions. Art activities for the remainder of the visit took place in a large studio. There, children worked together on projects on the floor or at miniatures tables (Schleien et al., 1995). The first session for each small group involved teaching the concepts of line, shape, color, and textures. At the remaining sessions, each small group worked together to build "Kidspaces and Rooms" made with large sheets of cardboard and decorated with paint, colored paper, and so forth. Parents and friends attended the close of the project to see these unique spaces. Staff were not to prompt any student to engage in cooperative behaviors or reinforce them for doing so. If child safety was perceived to be threatened, then adult participants could intervene. Nondisabled students received a 45-minute information session on ways to interact as friends with children who were autistic.

Observers and interobservers evaluated the interactions according to these variables: (a) frequency of positive social interactions directed toward students with autism by their peers with autism and by nondisabled peers, (b) frequency of positive social interactions initiated by the students with autism towards their peers with autism and nondisabled peers, and (c) appropriate and inappropriate behavior of students with autism. They were observed in the gallery and the studio.

Positive interactions directed toward the students with autism by nondisabled peers increased significantly within both groups. However, interactions initiated by

students with autism to their nondisabled peers did not show any significant decreases or increases. The results of this program support the use of inclusive art classes for promoting social interactions directed toward children with autism by nondisabled peers. This study was limited because efforts were not made to assess whether or not these social interactions initiated by nondisabled peers occurred in the school or home environment as well (Schleien et al., 1995).

There are five prerequisites that need to occur in order to increase social initiations in a regular classroom. First, initiations should be spontaneous and occur in the absence of prompts or initiations from others. Second, they should have high probability of peer responses. Third, autistic children should initiate at an equal rate of their nonhandicapped peers in the same setting. Fourth, autistic children should use a variety of behaviors to elicit social interactions. And finally, the initiations should not be so burdensome that it takes the teacher's time away from other children. Unfortunately, there were no studies that addressed all of these conditions for preschool-aged children with autism. Priming is an intervention strategy used to help increase the participation of handicapped children in school. There are three defining aspects of priming: (a) priming should be conducted prior to the activity, using the same materials; (b) the priming session is low in demand, and it has tasks the child can easily complete; and (c) the priming session is rich in potential sources of reinforcement (Zanolli, Dagget, & Adams, 1996).

In the present study, the effects of priming interventions on spontaneous initiations of autistic children to their nonhandicapped peers were evaluated. Participants

of this study were John and Brandon--autistic children--and their peers. The peers were chosen if they expressed interest in John or Brandon, played frequently with John and Brandon's preferred activities, and had good social skills. The teachers did the peer training by role-playing. John and Brandon and the peers practiced responding to initiations with the teacher's instruction and feedback.

Priming sessions were conducted just before activity sessions. The teacher prompted John to smile at the peer, look at the peer's face, touch the peer's hand, say the peer's name, say "give me that" to the peer, say "look at mine," show a picture or a toy, and say "show me yours," and look at a toy shown by the peer. The teacher prompted these behaviors in a prearranged order. The teacher modeled the behavior and told the participants to direct the behavior to the peer in each trial. John had 14 trials and Brandon had 10. Activity sessions were carried out in the classroom when most of the other children were out of the room until the whole-class phase with total participation. No prompts or consequences were given by the teacher during activity sessions (Zanolli et al., 1996). When the children advanced into the whole-class phase with participation, their trials within their priming sessions were reduced.

Results indicated that priming successfully addressed the five criteria involved in teaching children with autism to initiate to peers. First, priming increased John and Brandon's spontaneous initiations because there were no prompts or initiations from teachers or peers during the activity sessions. Next, priming produced initiations that were salient enough to be successful. Also, John and Brandon's rate of initiations not only met but exceeded the average rate of their peers in the same activities (Zanolli et al.,

1996). Many of John and Brandon's initiation were common nonverbal behaviors that are usually lacking in children with autism. Finally, priming increased spontaneous initiations without requiring excessive teacher time. The teacher was able to conduct play activities in her usual way during whole-class participation and reduced priming phases.

The following case study is very similar to the previous one; however, it differs by involving the children in their own assessment. The children self-monitor their own initiations at peers. Self-assessment or monitoring procedures represent another means to promote independent responding. This strategy has been used to improve preschool children's transition skills, recruitment, teacher attention, and completion of preacademic activities (Connell, Carta, & Baer, 1993). This concept may also improve some aspects of self-concept in autistic children was well. Kohler, Shearer, Buchan and McCullough (1996) sought to broaden existing literature in three ways:

1. To compare the impact of this procedure when applied by an adult versus child implementation agent.

2. To examine how self-monitoring effected the children's social or interactive adult prompts.

3. To pursue additional parameters of children's responses during a follow-up phase, including the consistence and accuracy of their self- monitoring as well as the quality of their social exchanges.

Three children with autism and 9 nondisabled children participated in this study. All of the children were enrolled in a half-day integrated preschool program. The 3 boys with autism were 5-years old at the start of the study (Kohler et al., 1996). The ages of

the nondisabled children ranged from 3- to 5-years old. All experimental sessions took place in a small playroom that was familiar to the children. Each of the sessions were 8 minutes long and included a manipulative and sociodramatic activity that were set up 10 to 15 feet away from one another. There was no teacher participation in any of the sessions. Research activities were conducted by one of the authors. Several observational codes were used for recording behaviors of disabled children and their peers. They included adult behaviors as well. The children-self monitored themselves by bead movement. The child would only move the bead after the occurrence of a positive social exchange. The child who exhibited a specific initiation was responsible for moving the bead if his initiation was followed by positive response. The children learned to remind one another to extend initiations and move beads. If 8 or more of the 12 beads were moved in the 15-minute training session, then they received small rewards. The children progressed from frequent adult prompted sessions and finally to no interaction from adults during sessions.

This study was, in fact, able to show success in two aspects of the researchers' goal. The first one being adult and child procedures were effective in increasing children's social engagement with peers. Second, the child monitoring process was effective for maintaining each child's social engagement in the later absence of adult prompts. Despite the demonstration of short-term maintenance, the authors believed that social engagement would have decreased had the study continued for another 5 to 15 sessions. The 3 boys failed to make the minimum amount of initiations necessary for reinforcement in half of their final sessions. (Kohler et al., 1996). Also, the quality of the

children's self-monitoring diminished. Some of the limitations of this study were noted:

1. Research staff and not teachers employed the study. It is important to develop interventions that can be implemented by primary caregivers within natural or indigenous settings (Wolery, Gessler-Werts, & Holcombe, 1994).

2. Experimental conditions were too brief. Future studies should include an extended phase to review long term maintenance of children's intervention gains.

Symbolic Play

It is a widely held belief that autistic children are impaired in their ability to play symbolically. Some confusion exists over the exact definition of symbolic play. This is a result of the many terms with similar meanings (e.g., symbolic, pretend, dramatic, fantasy, and imaginative play). Fein (as cited in Jarrold, Boucher, & Smith, 1993) stated that symbolic play is seen as behavior that is simulative or nonliteral. Leslie and Frith (as cited in Jarrold, Boucher, et al.) defined symbolic play as if something is the case when in reality it is not.

Many theorists have generated several hypothesis for the specificity of the impairment in spontaneous symbolic play of autistic children. Barren-Cohen, Leslie, and Frith (as cited in Jarrold, Boucher, et al., 1993) suggested that there is a cognitive impairment in the ability to process metarepresentations. This impairment exists among the broad range of symptoms of autism. Baron-Cohen and Bolton (1993) took the view that because autistic children are developmentally delayed, it will take them longer to reach the stage of symbolism, opposed to their non-disabled peers. Hobson, Outson, and Lee's (as cited in Jarrold, Boucher, et al.) theory argued that because of autistic children's

lack of social interaction along with emotional deficits, they are prohibited from different orientations to the equivalent situations. Other researchers hypothesized that autistic children's knowledge of physical reality is more cognitively solid to them than their knowledge of mental reality. Autistic children generally relate things by using all their senses to evaluate them. Edelson's definitions and characteristics of autism mention perserverative behavior in the autistic child (Edelson, 1998).

It is difficult for them to switch from habitual scheme to planned symbolic play due to its abstractness. Generativity deficits is also an area to be reviewed by researchers. It is speculated that the impaired excess to stored knowledge causes impaired creativity, or originality. However, Lewis and Boucher (1995) pointed out that this impairment can be overcome by cues and prompts. This theory was tested on young children but not preschoolers which also supports the theory that children of autism may develop symbolic play later in life.

The generativity hypothesis predicts that children with autism will be impaired in producing both symbolic (pretend play in situations where they must generate their own ideas for play but not in situations in which ideas for play are supplied to them) and functional play. Leslie (1993) argued a representational deficit hypothesis-- where children with autism will show selective impairments of symbolic but not functional play in both types of play situation. These predictions were tested in the present experiment.

There were 3 groups tested, with 15 children in each group. One group consisted of autistic children (11 boys and 4 girls); another group consisted of children with moderate learning difficulties (11 boys and 4 girls); and the last group was comprised of

younger, nondisabled children (12 boys and 3 girls). All the groups were of comparable expressive language ability. The chronological ages of the autistic children ranged from ages 6 to 15 years old; however, the mental ages of these children ranged from 4 to 9 years old. The children with learning disabilities ranged in age from 5 to 10 years old, and their mental ages ranged from 3 to 5 years old. The nondisabled children ranged in ages from 3 to 5 (Lewis & Boucher, 1995). The participants were given two toys--a male or female doll and a model car. Two sets of 12 instructions were prepared: one for the use with the doll and the other for use with the car. Each child was tested individually, in their own school, and in a room familiar to them. The study consisted of two sessions on the same day: one in the morning and the other in the afternoon. Both sessions lasted 35 minutes and were audio-video recorded. Session 1 involved spontaneous play, elicited play, and instructed play with the toy car. Session 2 was implemented in the same format with the toy doll. In elicited play, the tester would say, "show me what the car can do," or "what else can the car do?" If the child had difficulty, the tester would then give an instruction from the list used in the instructed play session (e.g., "show me how a car turns the corner...").

The results of this study supported Lewis and Boucher's (1995) hypothesis--young people with autism were not impaired in their ability to follow instructions in instructed play or generate symbolic ideas with cues or prompts. However, there was a surprising factor in which the autistic children were able to generate more original ideas with the doll than expected. The ability of the young autistic children to generate original ideas for play with the doll was unexpected in view of their well-documented lack of

interest in dolls. It was likely that the explanation lies in ease with which children could generate cues for play actions by manipulating the doll's body and moveable limbs. Conversely, the car had fewer moveable parts and was less productive of play ideas than were the doll's limbs and body. However, work by Jarrold, Smith, Boucher and Harris (1993) with younger children with autism indicated that a combination of cues and pressure to produce play does not overcome play generation difficulties in young autistic children. Yet these same children can carry out play instruction, as well as language matched controls, and can comprehend the pretend play of other children.

Conclusion

Many years after defining and redefining autism, understanding the nature of autism and how to effectively treat children with this serious disorder still presents a considerable challenge to researchers and clinicians alike (Mundy, 1993). There is yet to be found a cause or cure for this malady. Researchers have abandoned this position, but focus on strengthening critical characteristics needed for children of autism to become as independent as possible in their daily lives. After evaluating the major topics of this paper, the author has taken the stance that focusing on strengthening behaviors necessary for the autistic person to function to their greatest potential is a primary goal. More time must be geared toward improving the validity, selection bias and generalizeability for early intensive behavioral intervention. The EIP has brought about a substantial amount of progress for over half the children involved.

This program confirms that behavioral interventions are effective in the long run (Mesibov, 1993). The success measured in this study is attributed to the therapy applied

(Baer, 1993). Baer stated that the present study (McEachin et al., 1993) demonstrated the durability of the triumph. Early intensive behavioral treatment needs to be restructured to accommodate the classroom and home environment. Parents and school district personnel are eagerly awaiting the reform as well as educators. Independent researchers must replicate these triumphant studies. It is imperative that they occur through federally funded multisites.

Recent research supports the view that integrated social environments of disabled and nondisabled children emits progressive results. It is clear that social advances will continue in integrated rather than segregated settings (McGee, Paradis, & Feldman, 1993). Decreased levels of autistic behaviors corresponded with the availability of typical peers in the same setting of autistic children. The author suggests more community based social integration programs be implemented. The Special Friends program (Schleien et al., 1995), which encourages the development of relationships between students with severe disabilities and their nondisabled peers, is just one of many community-based programs to be further developed in the future. Social skills programs give the child with autism the opportunity to initiate and learn the socialization process.

Where autistic children lack in symbolic (pretend) play, it is generally related to their abnormal subjectivity. However, Jarrold, Boucher, et al. (1993) have shown that children with autism are able to generate some pretend play with cues and prompts or toys with many manipulatives features. This helps autistic children correlate to the external world and others in it.

The author also suggests that social intervention programs are continued

throughout educational environments. Research has shown that priming and peer-initiated strategies produce social interaction (Zanolli et al., 1996; Kohler et al., 1996). It also removes sociostereotyping of disabled people from the minds of nondisabled peers in some cases. Social skills programs give the child with autism the opportunity to initiate and learn the socialization process. People with autism have to take in the real world in addition to their world. This brings about frustration and a sense of intrusion. Therefore, society must support, encourage, and respect the autistic person's position and continue to research and develop methods to assist them.

In conclusion, the author feels that there should be continued research and less criticism of research that has been done over 2 decades ago. The progress that could be made in therapy is shackled in research design (Baer, 1993). More allocated funds to the study of autism by the federal government would help ensure our belief in the 1975 Education for all Handicapped Children Act (P. L. 94-142) and its amendment passed in 1986. Additional funds will help ensure children with disabilities an equal chance at a meaningful life.

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